
UNIT 1 THE BODY IN BIOMEDICINE

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1.1 INTRODUCTION

Our bodies are the first and foremost reality of our lives; we live with and through our bodies. But ideas about the body have varied across cultures and historical periods. This unit examines different perspectives on the body in the context of western culture, which have been foundational in the conceptualisations of the biological sciences, particularly, modern medicine or biomedicine.

Apart from science, religion has historically been a key area of generating philosophies of the body, which are as valid today as they were in the past. For instance, in Hinduism, the physical body also incorporates a *karmic dimension*. Even though in the course of the cycle of births, deaths and rebirths, the soul changes bodies, there is assumed to be continuity between karmic deeds (and misdeeds) and the nature of the physical body that the soul takes on, e.g. disability is considered to be a retribution for misdeeds in a previous lifetime. In Islam, on the other hand, disease and disability are not matters of individual fault or sinfulness; they are accepted with compassion and the object of communal solicitude and assistance. Christianity

too has distinctive notions of the body, which as we shall see in the course of this unit, have played a major role in the conceptualisations of the body in Western culture including biomedicine.

Different cultures have different notions of the human body, and even within the same culture they change over time, as you can see from the following notions prevalent during different times and cultures:

- The body is the tomb of the soul(Plato circa. 428/427 BC - 348/347 BC)
- Your body is the temple of the Holy Ghost (Saint Paul circa. 5 BC - c. 67 AD)
- The human body may be considered as a machine(Rene Descartes 1596 -1650)
- The body is what I immediately am(Jean-Paul Sartre 1905 -1980)

(Cited in Synott, 1992)

Western culture has had several competing paradigms of the body with the pendulum swinging between philosophies celebrating the body and more spiritual philosophies advocating abstinence and asceticism. For instance, while hedonism in ancient Greece advocated a pursuit of life with pleasure as a dominant theme, Orphism regarded pleasure as anathema and the body as the tomb of the soul. In the Roman Empire, the dominant philosophy, stoicism, continued with the body-soul dualism, with the body being regarded as a corpse imprisoning the soul that is pure and divine in essence.

Like other religions, Christianity has had several different paradigms of the body, viz. physical, mystical, and spiritual. The body was viewed as the image of God: the sharing of body substance mystically through the Mass (church ceremony involving ritual consumption of meat and wine recreating the scene of the Last Supper before Christ was betrayed by one of his followers and taken away for crucifixion). Then, there is the idea of the resurrection (the belief in the Day of Judgement when the dead shall rise from their graves and go to heaven) giving a spiritual dimension to the body. There were both body-positive and body-negative attitudes: while on the one hand Christ engaged in feeding the hungry and healing the sick, there was an equal emphasis on self-denial, fasting, renunciation, poverty, and chastity. In fact, in all major religions of the world, including Christianity, there is ambivalence towards the body, particularly with regard to sexuality. Gratification of bodily needs has been equated with self-indulgence and self-denial has been hailed as proof of mastery of the individual self and a sign of divinity.

1.2 OBJECTIVES

After reading this unit, you will be able to:

- Comprehend a historical understanding of different perspectives on the human body in Western culture;
- Critically analyse the conceptualisation of the body in modern medicine or biomedicine; and
- Discuss the feminist critique of the body in biomedicine.

1.3 THE HUMAN BODY: MULTIPLE PERSPECTIVES

Greek art, mythology and popular culture, by and large, glorified the body and celebrated the naked (particularly) male form. This honouring of the physical body is illustrated by the Olympics which began in 776 BC on Mount Olympiad in the Elias region. The city state of Sparta (6th to first centuries BC) in ancient Greece was known for its emphasis on sports and body culture. However, this celebration of the physical body did not always translate into the philosophical realm. For instance, there is an inherent opposition between body and soul in Plato's dualism. Beauty, purification and the pursuit of philosophy are the means of freeing the soul from the thralldom of the body. Let us now discuss the concept of body in the discourses of art and sculpture, and science.

1.3.1 Body Celebrated in Art and Sculpture

Negative attitudes towards the body and an emphasis on asceticism dominated the philosophical and religious thinking in Europe throughout the period of the Roman Empire (circa 1st -7th century AD) and the Middle Ages (circa 5th-15th century AD). However, a radical shift in thinking known as the Renaissance (rebirth in French) occurred between the 14th and 17th centuries beginning in Florence (Italy) and then spreading to other parts of Europe. The Renaissance was a cultural movement involving a resurgence of learning based on classical Greek and Roman sources with Leonardo da Vinci (1452-1519) and Michelangelo (1475-1564) being its foremost representatives. During this period, attitudes towards the body underwent rapid transformation. The body was celebrated in art and sculpture, regarded as beautiful, sacred and good. There was an end to the ascetic ideals of the body giving place to the rise of the egocentric individual and notions of privacy. Even within Christianity, the rise of Calvinism (a reworking of the basic tenets of Christianity by John Calvin (1509-1564) that emphasised this-worldiness and man's engagement in the affairs of this world, predestination, and the grace of God as means of individual salvation) resulted in the development of a more body-respecting religious outlook advocating a path of moderation rather than rigorous self-denial and negation of the physical body.

1.3.2 Body as a Machine

Against this ideological backdrop, a new paradigm of the body, viz. the body as machine emerged. Italian Renaissance artists became anatomists by necessity, as they attempted to represent a realistic, more lifelike, portrayal of the human figure in sculpture and painting. The Florentine painter and sculptor **Antonio Pollaiuolo** (1431/32-1498) dissected human bodies in order to investigate the muscles and understand the nude in a more modern way. Both **Leonardo da Vinci** and **Michelangelo** were renowned anatomists of their time.

Experimental investigation through dissection also became a major tool of medicine. **Andreas Vesalius** (1514 -1564) authored one of the most influential books on human anatomy: '*De Humani Corporis Fabrica*' (*On the Workings of the Human Body*). He is often referred to as the founder of modern human anatomy. **William Harvey** (1578 -1657) was the first to describe correctly and in exact detail the systemic circulation and properties of blood being pumped around the body by the heart. Bacteria and micro-organisms were first observed with a microscope by **Antoine van Leeuwenhoek** (1623 - 1676), initiating the scientific field of microbiology.

But the most powerful philosophical articulation of the body as machine is **Rene Descartes** (1596-1650) '*cogito ergo sum*' (I think, therefore I am) (cited in Kenny, 1968, p. 62). This Cartesian first principle means that this 'I' by which 'I am' is essentially the mind which is distinct from my body. In fact, Descartes likened the body to a clock which works without a mind. While on the one hand the human body was equated with a machine by philosophers like Descartes and Thomas Hobbes (1588-1669) and operated through laws of mechanics, on the other hand, it was also recognised that human bodies were different from animal bodies, because they had minds and souls. Consequently, a division of labour was instituted with the body becoming the terrain of science; while the soul was the domain of the Church. This dualistic principle laid the foundation of the conceptualisation of the person in science and medicine, which is as valid today as it was five hundred years ago.

Check Your Progress:

Do you agree that the human body is like a machine? Explain this concept while drawing examples from bio-medical technologies.

1.4 THE BODY IN BIOMEDICINE

As we have seen in the previous section, the body was conceptualised as a machine in the modern world. This materialistic conceptualisation of the body was reinforced with the growth of science and retained within the field of medicine. In the following section, we will focus on the construction of the body in the context of modern medicine, surgery, and genetic revolution, which looks at body only as an instrument or object of scientific progress and capitalism.

1.4.1 Materialism of the Body

As you progress in this unit, you can see the construction and reconstruction of women's body with time and era of development. Beginning with the Renaissance, developments in medicine, particularly in the 19th century resulted in a reconstruction of the body. Edward Jenner's (1749-1823) discovery of the smallpox vaccine in 1796 paved the way for a revolution in modern medicine. The control and eradication of killer diseases like smallpox, typhoid, plague and cholera, the cell theory of **Rudolf Virchow** (1821-1902) and the germ theory of **Louis Pasteur** (1822-1895) transformed medicine. The psychological studies of **John B. Watson** (1878-1958) and **B.F. Skinner** (1904-1990) depicted mental functioning in very physical terms, dismissing the notion of the soul altogether. The final dethronement of the binaries mind/body, human/animal, superior/inferior asserted from Plato to Descartes was witnessed in Charles Darwin's (1809-1882) theory of evolution, whereby human beings were not created by divine design, as asserted by the Church, but were actually descendants of animals.

Friedrich Nietzsche (1844-1900), the most influential philosopher of that era, elevated the body to a level of total supremacy overturning the ascetic and body denying doctrines of the past. The body was the self. The existentialist philosophy of **Jean Paul Sartre** (1905-1980) furthered the body-affirming perspective. According to Sartre, 'I live my body... the body is what I immediately am... I am my body to the extent I am.' (Sartre, 1984, p. 326). Thus, the materialism of the body reigned supreme in biology, medicine, psychology, and philosophy by the 20th century.

These medical discoveries had massive social and political repercussions; **Edward Jenner's** smallpox vaccination opened a new era in public health with the English Parliament making smallpox vaccination compulsory in 1853. The individual body now became property of the nation state. The Contagious Diseases Act was passed in 1866 mandating compulsory examination of prostitutes and the Vaccination Act (1871) making vaccination against diseases like plague, smallpox and cholera mandatory for the population. This was also the period of colonial expansion and many British laws were transplanted to the colonies like India, where they continue to

be part of the legal system even today. For instance, Article 377 of the Indian Penal Code that punishes homosexuality is a product of that period. With the development of vaccines, anaesthesia, antibiotics and sterilisation, the body became something not to be feared and fought against; but it could be enjoyed, more easily mastered, even abused and then cured.

1.4.2 Bionic Technology and Reconstructive Surgery

While a holistic perspective integrating the physical, psychic, environmental, social and cultural dimensions of health and disease may be held up as the ideal, medical practice and research still work with a very strong notion of the body as machine, a predominantly material entity which is hugely manipulable and repairable and whose parts are replaceable. In reconstructive surgery, the body is not given, nor the temple of the soul but so plastic that it can be constituted at one's whim; and bionic technology enables replacement of parts with mechanical aids in the form of cardiac pacemakers, ear and eye implants, collagen fibre (knee replacement) and silicon rubber (breast enhancement). Bodies may also be interchangeable through organ transplants (liver heart, lungs pancreas, kidneys, bone marrow). There are also transplants between species or xenografts. Stem cell technology offers unimaginable therapeutic possibilities in the treatment of life threatening acute and chronic diseases and permanent disabilities such as muscular dystrophies. With the development of more invasive and sophisticated imaging techniques and blood assays and the greater specialisation and super specialisation in medical practice, the dominance of laboratory findings over clinical judgements has almost resulted in the individual as patient disappearing from medicine and being replaced by the socially unmarked body and its constituent parts.

1.4.3 Immunological, Hormonal and Genetic Configurations of the Body

Notwithstanding its greater segmentation and atomisation, the body in biomedicine is not a homogeneous body: multiple complementary and supplementary perspectives are available for envisioning the 'biomedical body'. The most basic biomedical configuration of the body is to view it as a set of interrelated systems, i.e. respiratory, digestive, muscular-skeletal, neurological, excretory, etc. However, with greater understanding of bodily processes at molecular, cellular and genetic levels, there are immunological, hormonal and genetic configurations of the biomedical body.

The immune system is the body's defence system against disease; it identifies and exterminates pathogens and tumour cells. In the face of attacks from bacteria, viruses or its own cells, several interrelated biological processes are operationalised to counter the invasion. Over time, immunological memory and adaptation are set in motion to recognise and destroy harmful pathogens. This is the basis of vaccination. In her exploration of scientific

and cultural representations of immunity in different sites such as medical laboratories and AIDS clinics, the anthropologist Emily Martin (1994) delineates characteristics of flexibility and adaptability of the immunologic ally fit body, features that are intrinsic to the contemporary capitalist economic system.

The human genome project, a multi-nation venture, completed the total sequencing of the human DNA (Deoxyribonucleic acid) over a 13 year period in 2000. It *identified* the approximately 20,000-25,000 genes in human DNA and *determined* the sequences of its 3 billion chemical base pairs. This database provides another biomedical perspective on the body, since genes are the inherited building blocks of organic matter like DNA and RNA (Ribonucleic acid). Genes hold the information to build and maintain an organism's cells and pass genetic traits to offspring. Medical technologies such as prenatal testing are an application of genetic engineering which is an expanding field of medical technology that not only offers immense therapeutic possibilities (e.g. removing and replacing disease causing genes) but also raises very difficult ethical and moral issues (e.g. Should the detection of disease-causing genes in the foetus automatically make abortion permissible? And at a broader level how much and to what extent should one tinker with the intrinsic elements of life?).

Hormones are powerful chemic messengers that are produced at one site and then transported via blood to other cells in the body. Growth hormone, thyroxin, estrogen and testosterone are examples of hormones in the human body. Moving beyond the body, emotion and mind divisions, hormones have physical, cognitive and emotional dimensions. For instance, testosterone stokes sexuality, aggression and competitiveness, while dopamine (another powerful neurological hormone or neurotransmitter) evokes desire for pleasure, in general, making us work for a range of diverse pursuits such as love, wealth and power. Oxytocin, also known as the cuddle chemical, is responsible for creating feelings of love and encouraging bonding behaviour in relationships.

The nature-nurture debate is a perennial theme in discussions on the relationship between heredity and the environment and their relative influence on individual health, behaviour and personality. Nature represents innate biological features while nurture represents environmental influences including individual experience. Biomedicine seems to have tilted the scales strongly in favour of biology in this debate. At the most, there is an acknowledgement that biology interacts with culture in individual experience, but by and large biology is considered to be destiny. In such a scenario, bodies are just that: bodies with the sacred element totally sucked out.

The European Enlightenment of the 18th century resulted in the creation of the Cartesian body, a machine symbolising materialism, individualism and

secularism (Synott, 1992). In the 19th century the body was defined politically as state property and economically as an instrument of production. Nietzsche spoke of the superiority of the body over mind and Darwin and Freud further contributed to the body becoming a central issue. Contemporary biomedicine continues to embrace and enhance the mechanistic and materialistic models of the body with body positive attitudes and technologies. This perspective on the body has been critiqued from several directions like religious and traditional healing systems that harbour more holistic perspectives. One of the most trenchant critiques of this configuration of the body has come from feminism. Let us turn to this in the following section.

Check Your Progress:

Do you agree that your body is subservient to bio-medical technologies? Substantiate your answer with a living example.

1.5 FEMINIST CRITIQUE OF THE BODY IN BIOMEDICINE

In the discussion on body and biomedicine, it is essential to look at how feminists attack the representation of body in biomedicine. Hence the concept of body politics emerged as a critical discourse within feminism which challenged the understanding of women's body with a dualistic mind/body framework. The centrality of this section will rest on the discussion of body politics and feminists' critique of reproduction as the primary source of women's bodily oppression.

1.5.1 Body Politics

One of the most important contributions of feminism has been highlighting the centrality of the body in different discourses and practices. The pioneering feminist theoretician **Susan Bordo** (1987) traces the dualistic nature of the mind/body connection through the philosophies of Aristotle, Hegel and Descartes, revealing how such distinguishing binaries as spirit/matter and male activity/female passivity have worked to solidify gender characteristics and categorisation. Bordo goes on to point out that while men have historically been associated with the intellect and the mind or spirit, women have long been associated with the body, the subordinated, negatively imbued term in the mind/body dichotomy.

During 1970s, body politics became a key concept in feminist theory and praxis. It arose out of feminist politics particularly the abortion debates in the United States. Body politics originally involved the fight against objectification and commodification of the female body, and violence against women and girls, and the campaign for reproductive rights. “The personal is the political” became a slogan that captured the intertwining of the demand for equal rights in the home and within sexual relationships in the domestic sphere with the struggle for equal rights in the public sphere. This form of body politics emphasised a woman’s power and authority over her own body. Many feminists rejected practices that draw attention to differences between male and female bodies, refusing to shave their legs and underarms and rejecting, cosmetics and skin-revealing clothing. The book *Our Bodies, Our Selves* (1979) , published by the **Boston Health Collective**, aimed to widen and deepen women’s knowledge of the workings of the female body, thus allowing women to be more active in pursuit of their sexual pleasure and reproductive health. Second-wave feminist body politics during the 1980s promoted breaking the silence about rape, sexual abuse, and violence against women and girls, which many interpreted as extreme examples of socially sanctioned male power.

The term *body politics* refers to the practices and policies through which powers of society regulate the human body, as well as the struggle over the degree of individual and social control of the body. The powers at play in body politics include institutional power expressed in government and laws, disciplinary power exacted in economic production, discretionary power exercised in consumption, and personal power negotiated in intimate relations. Individuals and movements engage in body politics when they seek to alleviate the oppressive effects of institutional and interpersonal power

Thus, it can be seen that the concept of body politics links female embodiment, patriarchy and biomedicine in multiple ways, with reproduction becoming a central issue. In the West, the right to abortion became a war cry of the women’s movement from the 1960s. During the same period, the female body became a locus of the Indian Family Planning Programme (officially initiated by the Government of India after Independence in 1952) with its emphasis on female-centred and medically controlled methods of contraception such as the oral pill and tubectomy. During that period, women were blamed for poverty and increasing population growth, hence, regulation of women’s reproduction became the lynchpin of the state’s population control programme. Further, victimizing the body of poor and minority women with forced sterilisation had been an obvious practice of the state to achieve demographic target. Therefore, issues like reproductive health, reproductive rights and reproductive justice have been and continued to be prime concerns of the Indian women’s movement. Some of the key

reproductive health issues at stake are availability of legal and safe abortion, availability of contraceptive choices, women's access to basic reproductive services, contesting the use of unsafe contraceptive methods, particularly injectable and hormonal contraceptives (such as Depro Provera and Net-en) and prevention of prenatal sex detection and subsequent female foeticide.

1.5.2 Reproduction as the Locus of Feminist Critique

The locus of feminist critique of the biomedical body, and by extension of biomedicine itself, comes from the area of reproduction. Indeed, it is in the area of reproduction that gender politics overwhelmingly influences biomedical discourses and practices. One of the earliest and seminal writings was **Emily Martin's** (1991) work which showed how scientific descriptions and representations of the egg and sperm are deeply influenced by cultural stereotypes of male and female. Analysing descriptions of the male and female reproductive systems in standard medical textbooks used in MBBS courses in American universities, she concluded that scientific rendition rates female reproductive processes as less worthy than their male counterparts. In this rendition, menstruation becomes a failure when described as 'the debris of the uterine lining, the result of necrosis or death of tissue' (cited in Martin, 1991, p.486). On the other hand, male reproductive biology is evaluated differently. Spermatogenesis, unlike menstruation, is evaluated positively by its sheer profusion as the human male manufactures several hundred million sperms per day. By contrast, the female sheds only a single gamete every month. Furthermore, the male continually produces germ cells well into old age, while the female has a stockpile of germ cells at birth which degenerate by the fifth decade of life. Martin highlights that the medical texts celebrate sperm production because it is continuous from puberty to senescence, while egg production is rated as inferior as it is finished by birth. But why is the male's over production not seen as wasteful? Indeed, the language of reproduction is itself imbued with gender coded terms: the egg behaves femininely and the sperm behaves in a masculine way: the egg is large and passive and is transported, swept along and drifts to the fallopian tube. Sperms are mobile which deliver genes to the egg. They have velocity with strong tails; they propel semen into the vagina. They penetrate the egg coat (Martin, 1991, p.489). Even though sperms also live for only a few hours, the language focuses on the fragility and dependency of the egg and the virility and mobility of the sperm.

Logically eggs and sperms are equally active partners in the collaborative business of reproduction. The metaphor of the passive egg and active sperm are gendered cultural representations masquerading as scientific facts. Such gender imagery and stereotypical representations contest the objectivity and value neutrality of science. Indeed, as Martin points out, empirical research shows that far from being the aggressive penetrator, it is made out

to be in standard scientific textbooks that, the sperm has a weak tail. But then some recent research accounts that give a more active role to the egg do not escape the hierarchical gender ordering either. In many cases, the egg ends up as the female aggressor 'who captures and traps the sperm much like a spider', feeding into prevailing notions of women as aggressive and dangerous, another cultural gender trope depicting an engulfing devouring female sexuality.

From the above, we can see that even in an area like reproduction where the focus on gender should be obvious, there is a way in which its impact on the very constitution of knowledge construction remains veiled in a garb of scientific objectivity and gender neutrality. Without the insightful analyses of feminist scholars like **Barbara Ehrenreich**, **Deirdre English** (1979), and **Martin E.** which have deconstructed medical texts and practices, we would not be privy to the layered gender politics of knowledge production and theory construction. These authors highlight how patriarchal perceptions of women infuse the apparently objective understanding of female anatomy, physiology and psychology. Consequently, analysis of the body in biomedicine is incomplete if it does not incorporate a gendered understanding not only of reproduction where the gendering is so obvious, but other medical specialities ranging from neurology to dentistry and orthopaedics to ophthalmology. This exploration is a potentially promising area of future research.

Check Your Progress:

Define body politics and discuss how feminists have used the concept in the analysis of body in bio-medicine.

1.6 LET US SUM UP

From self as mind to self as body, from mind as spiritual to mind as material, over time, mind and body have changed places in the hierarchy of concepts and values. As **Anthony Synott** (1992) points out, each new age seems to create and reconstruct the body in its own image and likeness; yet, at any given time there are likely to be many paradigms of the body, competing, complementary or contradictory. 'Philosophical and political constructions of the body co-exist with scientific constructions and recent advances in medical science have reinforced mechanistic and material constructions of the body (Synott, 1992, p. 101).

Mechanistic and materialistic constructions of the body, particularly the female body, have led to its greater commodification, be it in the fashion and glamour industries, organ donation or reproductive technologies (including surrogacy). Medicine envisions the female body as primarily a reproductive body: menstruation, pregnancy, childbirth and menopause have been totally medicalised. In fact, greater scrutiny of the female reproductive system has placed the burden of birth control almost entirely on women instead of men.

Both patriarchy and biomedicine seek to control the body - fear of death and disease, fear of the strong impulses and desires of the body, fear of nature, fear of the mother's power over the infant, etc. are underlying motives. Idealising the body and wanting to control it go hand in hand.

1.7 GLOSSARY

- Bionics** : Bionics (also known as biomimicry, biomimetics, bio-inspiration, biognosis, and close to bionical creativity engineering) is the application of biological methods and systems found in nature to the study and design of engineering systems and modern technology. In medicine, bionics means the replacement or enhancement of organs or other body parts by mechanical versions (<http://en.wikipedia.org/wiki/Bionics>).
- Xenograft** : A surgical graft of tissue from one species to an unlike species (or genus or family. A graft from a baboon to a human is described as xenograft. The prefix "xeno-" means foreign, which came from the Greek word "xenos" meaning strange. <http://www.medterms.com/script/main/art.asp?>

1.8 UNIT END QUESTIONS

- 1) The body is a socially constructed phenomenon. Discuss with the help of examples.
- 2) "The body is the source of women's subordination". Do you agree or disagree? Discuss in the context of gender identity and gender relations.
- 3) Define the body in bio-medicine and place the feminist critique of the body while drawing examples from the contemporary society.

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